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REMARKS

As a preliminary matter, it is noted that claim 23 has not been rejected and is therefore submitted to contain allowable subject matter. Further, it is respectfully submitted that the amendments above do not raise any new issues that would require further consideration/search (e.g., previously examined features of claims 44-45 simply incorporated into claim 16 and previously examined feature of claim 36 incorporated into claim 34, etc.).

Claim 33 stands objected as being dependent on a non-elected claim. It is respectfully submitted that in view of the remarks below, independent claims 16 and 34 are patentable over the cited prior art. Accordingly, it is believed that all non-elected claims will be rejoined and allowed so that no amendment to change dependency of claim 33 is necessary at this time.

Claims 16 and 34 are the sole independent claims.

Claim 16 stands rejected under 35 U.S.C. § 103 as being unpatentable over Hanaoka et al., Nishio et al., or Furushima in view of Agostinelli et al.. These rejections are respectfully traversed for the following reasons.

Claim 16 has been amended to include the temperature range recited in claim 44. In contrast, Agostinelli et al. appears to teach away from annealing the alleged spin-coated layer at 700°C or more (*see, e.g.*, col. 10, lines 47-54 and col. 3, lines 59-62). That is, Agostinelli suggests the desirability to anneal the alleged spin-coated layer substantially below 700°C.

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In fact, the Examiner relies on the "lower processing temperatures" of Agostinelli et al. as motivation for making the proposed combination (*see* page 5, lines 2-3 and page 6, lines 1-2 of outstanding Office Action). Accordingly, the proposed combination does not disclose or suggest the combination of a spin-coated layer annealed in a gas atmosphere at 700°C or more so as to crystallize the spin-coated layer. Indeed, Agostinelli et al. is completely silent as to whether the alleged spin-coated layer is crystalline or not.

The Examiner is directed to MPEP § 2143.03 under the section entitled "All Claim Limitations Must Be Taught or Suggested", which sets forth the applicable standard:

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (citing *In re Royka*, 180 USPQ 580 (CCPA 1974)).

In the instant case, the pending rejection does not "establish *prima facie* obviousness of [the] claimed invention" as recited in claim 16 because the proposed combination fails the "all the claim limitations" standard required under § 103.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 16 is patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also patentable. In addition, it is respectfully submitted that the dependent claims are patentable based on their own merits by adding novel and non-obvious features to the combination.

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Based on all the foregoing, it is submitted that claims 16, 17, 19-33 are patentable over the cited prior art.

Claim 34 stands rejected under 35 U.S.C. § 103 as being unpatentable over Furushima in view of Ito et al.. This rejection is respectfully traversed for the following reasons.

It is respectfully submitted that neither Ito et al. nor Furushima provide any objective evidence which would suggest the desirability of the proposed combination. The Examiner asserts on page 14, line 16 - page 15, line 2 of the outstanding Office Action that (1) MOCVD and spin coating are well known to be equivalent methods of deposition as evidenced by Enomoto et al. ('011; col. 9, lines 35-55). The Examiner further asserts that (2) Ito's disclosure teaches depositing a ZnO film by spin coating and annealing to produce crystal grains of 20nm to 30 nm (col. 5, line 10 - col. 6, line 45), and alleges that the improved crystallinity is a result of Ito's spin coating and annealing.

With respect to the Examiner's (1) first assertion, col. 9, line 35-55 of Enomoto et al., at best, suggests only that MOCVD and spin coating are both viable depositing techniques *for its particular application*. It is noted that Enomoto et al. is not related to epitaxial growth methods for forming an III-V nitrides alloy. As such, Enomoto et al. does not indicate that MOCVD and spin coating are equally viable for every application, let alone for the specific application used in Furushima.

Furthermore, by the Examiner's own implied admission, Enomoto et al. does NOT indicate a preference for using spin coating over MOCVD. In fact, by simply listing MOCVD and spin coating in a common list, Enomoto et al. suggests that there is no preference for using spin coating over MOCVD so that Enomoto et al. actually evidences

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that the cited prior art does NOT provide the requisite motivation for replacing MOCVD of Furushima with the spin coating of Ito et al..

Even assuming *arguendo* that MOCVD and spin coating are equivalents, such a conclusion is not sufficient to establish a *prima facie* case of obviousness of the proposed combination. The Examiner must set forth objective evidence from the prior art that suggests the desirability of the modification to Furushima, not merely show that MOCVD can be replaced with spin coating. See MPEP § 2143.01 under the subsection entitled "Fact that References Can Be Combined or Modified is Not Sufficient to Establish *Prima Facie* Obviousness", which sets forth the applicable standard:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. (*In re Mills*, 16 USPQ2d 1430 (Fed. Cir. 1990)).

In the instant case, it is respectfully submitted that the Examiner has attempted to show only that the MOCVD of Furushima can be replaced with the spin coating of Ito et al., rather than providing objective evidence from the prior art which suggests the *desirability* of the proposed modification. As mentioned above, neither Furushima, Enomoto et al., nor Ito et al. suggests the desirability of replacing MOCVD with spin coating. Accordingly, it is respectfully submitted that the Examiner relied solely on improper hindsight reasoning, whereby the Examiner selected bits and pieces of the prior art and used only Applicants' specification as a guide to reconstruct the claimed invention.

With respect to the Examiner's (2) second assertion, it is respectfully submitted that the Examiner has not established *how* achieving the desired crystal grains is attributed to the "spin coating" taught in Ito et al. (which the Examiner relies on for modifying Furushima by replacing MOCVD with spin-coating). In fact, it appears that Ito et al. expressly discloses that the

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annealing temperature is the important parameter for achieving the desired crystal grains (see col. 6, lines 9-14). Ito et al. does not suggest that spin-coating has any affect on crystal grains. Accordingly, it is respectfully submitted that there is no motivation for replacing the MOCVD of Furushima with the spin coating taught by Ito et al., which is in a distinct field relative to Furushima. Further, as Furushima and Ito et al. are directed to distinct fields of interest, the Examiner has not established, based on prior art, that the desired results of Ito et al. (small grain size in a varistor) are equally desired and/or attributable to the device of Furushima.

Indeed, Ito et al. is completely silent as to annealing in a gas atmosphere wherein the annealing is the method by which to crystallize the spin-coated layer. Moreover, Ito et al. is directed to a ZnO layer with a grain size of less than 300 nm (ordinarily a poly-type grain), rendering it difficult to grow a III-V layer thereon. Accordingly, the alleged spin-coated layer of Ito et al. would not be receptive to a subsequent III-V growth layer thereon as formed in Furushima. As such, Ito et al. teaches away from a viable combination with Furushima.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 34 is patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also patentable. In addition, it is respectfully submitted that the dependent claims are patentable based on their own merits by adding novel and non-obvious features to the combination.

Based on all the foregoing, it is submitted that claims 34, 35, 37-43, 48 and 51 are patentable over the cited prior art.

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CONCLUSION

Having fully and completely responded to the Office Action, Applicants submit that all of the claims are now in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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